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Wang et al. (43) **Pub. Date: Apr. 1, 2021**(54) **PIXEL LEAKAGE AND INTERNAL
RESISTANCE COMPENSATION SYSTEMS
AND METHODS**(52) **U.S. Cl.**
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(2013.01); **G09G 2320/0242** (2013.01); **G09G**
2300/0452 (2013.01)(71) Applicant: **Apple Inc.**, Cupertino, CA (US)(72) Inventors: **Chaohao Wang**, Sunnyvale, CA (US);
Sheng Zhang, San Jose, CA (US);
Yingying Tang, Sunnyvale, CA (US);
Yunhui Hou, San Jose, CA (US)(57) **ABSTRACT**

An electronic device may include an electronic display having multiple pixels to display an image based on processed image data. Each of the pixels may include multiple sub-pixels. The electronic device may also include image processing circuitry to receive first image data for a sub-pixel of the and second image data for a group of sub-pixels surrounding the sub-pixel. The first image data may include a luminance value for the sub-pixel and the second image data may include luminance values for each sub-pixel of the group. The image processing circuitry may also determine a compensation value, to compensate the luminance value for lateral current leakage between the sub-pixel and the group of sub-pixels, based on the luminance value of the sub-pixel and the luminance values for each sub-pixel of the group of sub-pixels.

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